

# The Monachus Guardian

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## Cover Story

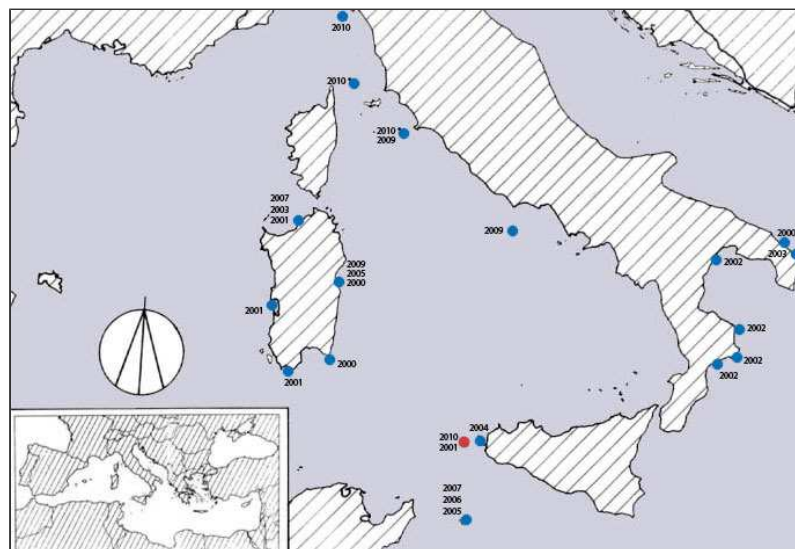
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### Cave habitats used by Mediterranean monk seals (*Monachus monachus*) in Sardinia

Luigi Bundone

[Gruppo Foca Monaca Italia](#)

The Mediterranean monk seal (*Monachus monachus*) is one of the most threatened mammals in the world, and has been classified as critically endangered by IUCN since 1996. The conservation of this species is thus a declared priority for all the countries where it is found.



Recorded sightings of the Mediterranean monk seal along Italian coasts over the last 10 years (GFMi Archive).

Although thought to have been extinct in Italy since the 1980s, sightings have been recorded in most of the areas of its former distribution range. These sporadic sightings show that, even if rare, the species may still occur. A comparison of historical data with present records indicates a certain lack of knowledge regarding the monk seal's habitat use along the Italian coastline.

In the last two decades several specimens have been sighted along the coast of Sardinia, in the Sicilian islands, in Apulia, in Basilicata, in the Tuscan and Pontino archipelago and recently even in Portofino.

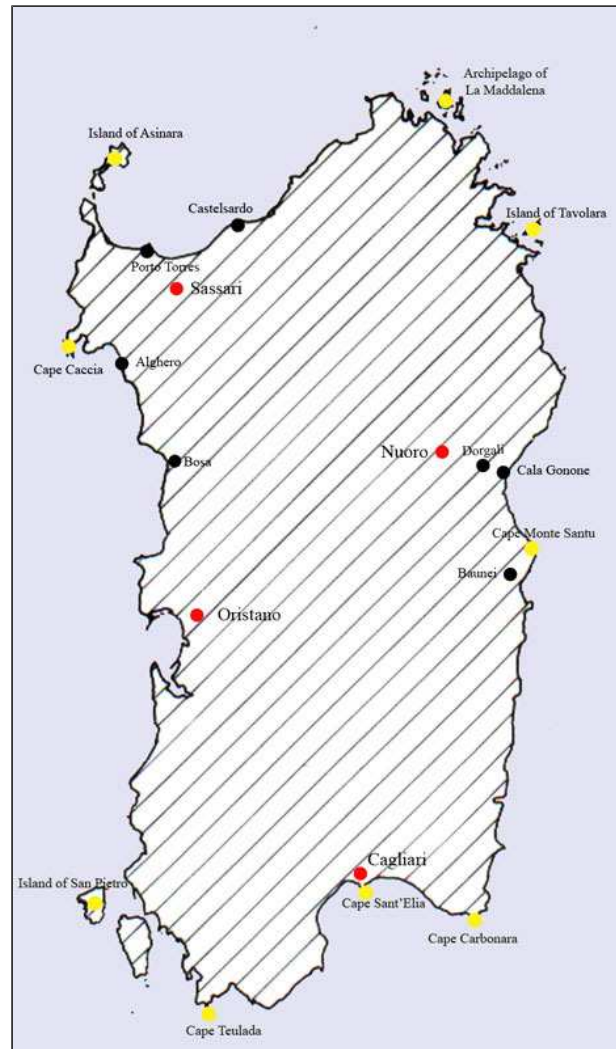
All of these recorded sightings were presumed to be of seals originating from areas such as the Mediterranean states of North Africa, or Greece.

This presumption, however, has hampered efforts to carry out proper research on and protection of potential habitats, and after 20 years, the territorial use of Italian coasts by these animals is still unpredictable.

This paper focuses on Sardinia, but similar efforts to improve the study and conservation of the monk seal could be implemented in other areas of the Italian coast.

In the past, the Mediterranean monk seal was a common, though not abundant, inhabitant of the Sardinian coast. Seals were frequently observed in many different areas around the island, such as the Maddalena Archipelago, the island of Tavolara and surrounding areas, the Gulf of Orosei, the coast from Arbatax to Cape Carbonara, the Gulf of Cagliari, Cape Teulada, the islands of San Pietro and Sant'Antioco, the island of Mal di Ventre (Oristano), the area around Bosa, the surroundings of Alghero, the island of Asinara and the coast from Castelsardo to Porto Torres (Cetti 1777, Azuni 1802, Casalis 1833, 1834, 1836, 1849, Della Marmora 1839, 1860, Voltan 1899, Valdes & Ebau 1996, Bundone 2005).

Conservation efforts, however, have historically concentrated on only two identified monk seal caves: the Grotta del Bue Marino and the Grotta del Fico (Furreddu 1973b, Bareham & Furreddu 1975, Bundone 2005), both located in the Gulf of Orosei in central-eastern Sardinia.



Sardinia (GFM).

Even though two studies have been carried out in Sardinia, applying modern procedures to determine the actual and potential habitat availability for the species, the lack of ongoing research has prevented a proper monitoring of these areas. The first of the two studies was conducted by WWF in 1994, along a stretch of coast extending from Cala Gonone to Capo Monte Santu and resulted in the identification and mapping of 27 caves, 8 of which were considered suitable for pupping (WWF 1995, Mo 1998).

Following the sighting of a seal near the island of Cavoli in August 2000, an inventory of monk seal haul-out sites was carried out by ICRAM along the coasts of the Marine Reserve of Capo Carbonara and Cavoli Island in south-eastern Sardinia (Mo 2000), identifying 16 caves (the results have not been published).

Little is known about the habitat use of the seals along the remainder of the coast. Nevertheless, many toponyms and publications (Bundone, 2005) aimed at hunters and

travellers in Sardinia, indicate several other caves that have historically been used by monk seals.

The most famous cave known to have been used by seals is undoubtedly the Grotta del Bue Marino (Dorgali), located 4 km south of Cala Gonone, which takes its name from the seal, or 'sea ox' as it was known since ancient times (Furreddu 1973b, 1987, Valdes & Ebau 1996, Bundone 2005). During the first expeditions seal bones were found in the northern fossil branch of the cave, in a chamber called "Sala dei Candelabri" (Furreddu & Maxia 1964, Altara 1995), though further studies of the bones are necessary to allow a correct interpretation of these remains. About 900m along the southern arm of the cave, passing through a partly navigable channel, there is a wide beach called "Spiaggia delle foche" where seals used to haul out (Furreddu & Maxia 1964, Furreddu 1973b, Colomo & Ticca 1984).



Sardinian coast.



A monk seal in the Bue Marino Cave (Dorgali) Sardinia.

A recent study (De Waele et al. 2009) inside the Grotta del Bel Torrente, 0.5km north of the beach of Cala Sisine, has revealed monk seal bones that are 5,000–6,500 years old. Interestingly, this is the first evidence of the use of caves by monk seals in Sardinia before the pressure of human hunters encouraged the species to abandon open beaches. This evidence supports the theory that in ancient times seals probably used open beaches and caves as haul-out and pupping sites, as Johnson and Lavigne have suggested (1999).

Following the southern coast of the Gulf of Orosei, the Grotta del Fico is located in the area of Capo Monte Santu (Baunei), at the end of Serra Lattona. This cave, reachable only by boat, is characterized by two entrances. In the 1970s, under the guidance of Padre Antonio Furreddu, the Gruppo Speleologico Pio XI studied a group of seals that used to come here to give birth to their pups (Furreddu 1972a, 1972b, 1973a, Bareham & Furreddu 1975, Bundone 2005).

The Grotta dei Colombi is located in the Gulf of Cagliari, at the base of the limestone cliff of Cape Sant'Elia. The presence of seals on the Cape was well known in the past (Della Marmora 1939). In his *Itieéraire de l'île de Sardaigne*, Alberto Della Marmora, referring to this cave, wrote: "At the end of the promontory, towards the south, in the calcareous rock, is a natural cave where pigeons live and where sometimes the sleeping seal can be surprised." (Della Marmora 1960).

On the south-western coast of the Island of San Pietro (Carloforte), in the Gulf of Mezzaluna, one finds another 'Grotta del Bue Marino'. It is the main cave of the island, accessible only from the sea and situated at the base of an ignimbrite reef (Furreddu & Maxia 1964, Fadda 1995, 2003, Bartolo & Fadda 1998).

The presence of seals along the coast of Oristano and Bosa was once widely noted



(Della Marmora 1836, 1860), but the only written source referring to caves in this area is Goffredo Casalis's *Dizionario geografico, storico, statistico, commerciale degli stati di S.M. il Re di Sardegna*: "The coastline of Bosa starts at the Cape Columbargiu. Here one finds an opening in the shape of a cave where seals go to rest." (Casalis 1834).

Writing about the area of Alghero, Casalis noted that many seals inhabited the caves of the Capo Caccia Peninsula (Casalis 1833), but the evidence refers only to the Grotta del Nettuno, a wide cave whose entrance lies directly on the water; a siphon connects the internal lake (lake La Marmora) to the sea. From La Marmora Lake, a second siphon allows access to a chamber called the "Ramo della Foca", where the last seals were observed (Muccedda & Pala 1990).

In the chapter entitled *Foche e caccia marina*, part of an extensive work about sports in Sardinia, Giovanni Voltan describes a cave where seals were regularly encountered.

The cave is also known as the Grotta dei Colombi, and is located near Porto Torres.

He stated: "Seals lie on the rocks and little beaches in the [cave's] interior." The presence of seals in this cave, he wrote, "although rare, is not overly exceptional". Interestingly, he reported that seals could be encountered there throughout the year (Voltan 1899). The frequent presence of seals in the area of San Gavino Decollato is also confirmed by Francesco Cetti in *I quadrupedi di Sardegna*.

The island of Tavolara hosts many different caves, some of which were known to be frequented by monk seals. The main cave is the Grotta del Papa, located on the north-eastern coast of the island (Anonymous 1989, Fadda 2003). On the same coast there is yet another Grotta del Bue Marino (Furreddu & Maxia 1964, Bartolo & Fadda 1989, Fadda 1994, 1995).

The Mediterranean monk seal is a species at great risk of extinction. As such, an accurate understanding of the species' historical distribution and habitat availability is indispensable to the implementation of effective protection measures.

Occasional encounters with monk seals in areas where they have previously been considered extinct have been recorded most recently in the Balearic Islands (San Felix 1999, Mayol 2008, Grimalt i Vert 2008, Font & Mayol 2009), in Lebanon [The Monachus Guardian news blog 12th September, 2010], in Israel (Scheinin et al. 2010) and in Syria (Gucu, 2004). Even along the Croatian coast new research and a functional information exchange network have allowed the Grupa Sredozemna Medvjedica<sup>[1]</sup> to identify and protect the individuals which appear to regularly frequent some areas (Antolovic et al. 2006; Antolovic et al. 2009).



Adult female identified in Kamenjak, Croatia.

During the World Conservation Congress, held by the IUCN in October 2008, Resolution 4.023 concerning the "Conservation and recovery of the Mediterranean monk seal *Monachus monachus*" proposed that: "... all IUCN's members from Mediterranean countries maintain and increase their efforts to aid the recovery of the species", asking "the States of the western Mediterranean, in collaboration with other countries harbouring populations in better condition, to draw up and apply a regional strategy to enable existing or recently extinct populations to recover ..."

Many uncertainties still exist in Italy about monk seal habitat availability despite the regularity of recent monk seal sightings. To simply define these observations as erratic and the individuals concerned as vagrants, does not seem an adequate response when protection of the species and its habitat is an international priority.

Action should be taken to implement surveys, habitat monitoring and environmental education, at least in those areas where monk seal sightings still occur in Italy. This would allow an accurate identification of suitable caves for the species as a starting point for a better protection. As an additional recovery measure, the Gruppo Foca Monaca Italia is supporting cross-country initiatives to create interconnecting protection corridors, that might allow the species to safely expand its habitat and reconnect isolated seal groups.

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[1] Jointly with the Gruppo Foca Monaca Italia